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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,362	11/10/2000	John C. Connolly	PLW 13206	5398
26171	7590	10/09/2003	EXAMINER	
FISH & RICHARDSON P.C. 1425 K STREET, N.W. 11TH FLOOR WASHINGTON, DC 20005-3500			MENEFE, JAMES A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/710,362

Applicant(s)

CONNOLLY ET AL.

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24,25,28-30 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24,25,28-30 and 32-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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HNOLOGY CENTER 2800**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

In response to the amendment filed 28 August 2003, claims 26, 27, and 31 are cancelled, and claim 35 added. Claims 24-25, 28-30, and 32-35 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24, 28-30, 33, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshikawa et al. (US 5,778,018). Yoshikawa discloses the claimed invention as follows, see Fig. 1 and the discussion thereof:

Regarding claim 24, Yoshikawa discloses a laser comprising a first cladding layer 4 (above 3), a second cladding layer 4 (below 3), and an active layer 3 disposed between the first and second cladding layers. The first cladding layer has a ridge having a first width formed on its upper portion, below the DBR 2. With the presence of this ridge the laser may be interpreted as a ridge waveguide laser. There is a first conductor layer 1 disposed on top of the ridge for application of current to the laser. There is a defined gain region within the active layer adapted for conducting the current, wherein the defined gain region has a second width greater than the first width (see Fig. 4). There are ion implanted reduced conductivity regions 5 within the active layer flanking the defined gain region, and a second conductor layer 7 for conducting current

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from the first conductor layer through the active layer. The second width is selected such that the defined gain region supports a fundamental mode, while higher order modes are not supported due to overlapping the reduced conductivity regions.

Regarding claim 28, the defined gain region necessarily has a first loss to generated light, and the reduced conductivity regions, by being ion implanted, will have a second loss to generated loss greater than the first loss.

Regarding claim 29, the reduced conductivity regions introduce significant loss to higher order modes, but not to the fundamental mode, of generated light.

Regarding claim 30, the active layer is InGaAs.

Regarding claim 33, the ion implanted regions will necessarily have a lower index of refraction less than that of the active region, as it is guiding light.

Regarding claim 35, it is disclosed that the ridge portion has a cross section of 6x5 microns, thus the first width is disclosed as "about 3 to 5 microns".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa.

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Regarding claim 25, it is not disclosed that the active layer includes a quantum well. Quantum well active regions are extremely well known, and it would have been obvious to one skilled in the art to use a quantum well active region due to their improved gain characteristics over many other active regions, as is well known.

Regarding claim 32, the energy of the implanted protons is not disclosed. However, such an implanted energy is known in the art of proton implantation, and it would have been obvious to one skilled in the art to implant protons at this level as a matter of obvious design choice.

Regarding claim 34, it is not disclosed that there is an insulator layer adjacent the first conductor. However, it is known in the art to include such a layer in ridge waveguide lasers. It would have been obvious to one skilled in the art to include such an insulator so that the current is injected from the conductors only through a certain specified region of the active layer, as is well known.

Response to Arguments

Applicant's arguments filed 28 August 2003, with respect to the previous rejections of claims have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new grounds of rejection are made above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367. The examiner can normally be reached on M-F 8:30-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



JM

September 24, 2003



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